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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,337	11/13/2003	Ronald S. Cok	80758ADAN	1167

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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/712,337	COK ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2,4-5,7-8,11-16,19-21,23-24,27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al (US Patent No. 6,518,962 B2) in view of Routley et al. (Pub. No.: US 2006/0038758 A1).

As to claim 1, Kimura et al teaches an organic light-emitting diode (OLED) display system having addressable pixels on a substrate, the pixels having performance attributes, and a control circuit for controlling the pixels of the display device (See Col. 1, Lines 9-22), comprising:

a) one or more OLED pixels (See Fig. 1, item 10, Col. 20, Lines 26-40);

b) an OLED pixel located on a substrate (See Fig. 1, item 1, Col. 20, Lines 9-15) and connected to the control circuit (See from Col. 2, Line 63 to Col. 3, Line 3);

c) a measurement circuit connected to the voltage signal to produce an output signal representative of the performance attributes of the OLED pixel (See Fig. 3, items 13,16, Col. 21, Lines 53-55);

d) an analysis circuit (in the reference is equivalent to comparison circuit) connected to the measurement circuit to receive the output signal, compare the

performance attributes with predetermined performance attributes, and produce a feedback signal in response thereto (See Fig. 3, item 21a, Col. 21, Lines 58-63); and

e) the control circuit being responsive to the feedback signal to compensate for changes in the output of the OLED pixels (See Fig. 3, item 22a, from Col. 21, Line 63 to Col. 22, Line 6).

Kimura et al. does not specifically teach a reference light emitting pixel located on the substrate such that the reference light emitting pixel has the same attributes as the light emitting pixels in the display. Kimura on other hand teaches as shown in Fig. 1 a TFT substrate (1) including a plurality of pixels (10) arranged within the display region (15). Kimura teaches a predetermined reference current or reference light quantity (Col. 3, Lines 28-33) with respect to measurement of the driving current or the emitted light quantity being performed by the measuring unit on the predetermined pixel-block basis. In addition, Kimura et al. teaches that number of pixels in the pixel block can be determined in a desired manner (Col.17, Lines 57-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the predetermined "pixel-block' in order to determine the number of pixels from which light quantity is measured. One would been motivated in view of the suggestion that determination of the number pixels can be one to satisfy the desired "reference light emitting pixel".

Kimura et al. does not disclose the OLED pixel having a voltage sensing circuit including a transistor connected to one of the terminals of the OLED pixel for sensing

the voltage across the OLED pixel to produce a voltage signal representing the voltage across the OLED pixel.

Routley et al. teaches the OLED pixel having a voltage sensing circuit including a transistor connected to one of the terminals of the OLED pixel for sensing the voltage across the OLED pixel to produce a voltage signal representing the voltage across the OLED pixel (See Fig. 7a, items 642,644,706, paragraph 0089).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Routley et al. teaching into Kimura et al. system in order to adjust power supply in response to sensed voltage (See paragraph 0063 in the Routley et al. reference).

As to claim 2, Routley et al. teaches output of the OLED pixels changes with temperature (See paragraphs 0009,0017).

Routley et al. does not disclose temperature sensor for generating a temperature signal and wherein the control circuit is also responsive to the temperature signal to calculate the correction signal.

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate temperature sensor for generating a temperature signal and wherein the control circuit is also responsive to the temperature signal to calculate the correction signal in to Routley et al. teaching and Kimura et al. system in order to adjust power supply in response to the temperature.

As to claim 19, Kimura et al teaches a method of controlling an organic light-emitting diode (OLED) display system having addressable pixels on a substrate, the

pixels having performance attributes, and a control circuit for controlling the pixels of the display device (See Col. 1, Lines 9-22), comprising the steps of:

a) providing one or more OLED pixels (See Fig. 1, item 10, Col. 20, Lines 26-40);

b) providing an OLED pixel located on a substrate (See Fig. 1, item 1, Col. 20, Lines 9-15) and connected to the control circuit (See from Col. 2, Line 63 to Col. 3, Line 3);

c) measuring the voltage signal to produce an output signal representative of the performance attributes of the OLED pixel (See Fig. 3, items 13,16, Col. 21, Lines 53-55);

d) receiving the output signal, compare the performance attributes with predetermined performance attributes, and produce a feedback signal in response thereto (See Fig. 3, item 21a, Col. 21, Lines 58-63); and

e) controlling the OLED display in response to the feedback signal by calculating a corrected control signal for controlling the OLED pixels and employing the corrected control signal to control OLED pixels to compensate for changes in the output of the OLED pixels (See Fig. 3, item 22a, from Col. 21, Line 63 to Col. 22, Line 6).

Kimura et al. does not specifically teach a reference light emitting pixel located on the substrate such that the reference light emitting pixel has the same attributes as the light emitting pixels in the display. Kimura on other hand teaches as shown in Fig. 1 a TFT substrate (1) including a plurality of pixels (10) arranged within the display region (15). Kimura teaches a predetermined reference current or reference light quantity (Col.

3, Lines 28-33) with respect to measurement of the driving current or the emitted light quantity being performed by the measuring unit on the predetermined pixel-block basis. In addition, Kimura et al. teaches that number of pixels in the pixel block can be determined in a desired manner (Col.17, Lines 57-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the predetermined "pixel-block' in order to determine the number of pixels from which light quantity is measured. One would been motivated in view of the suggestion that determination of the number pixels can be one to satisfy the desired "reference light emitting pixel".

Kimura et al. does not disclose the OLED pixel having a voltage sensing circuit including a transistor connected to one of the terminals of the OLED pixel for sensing the voltage across the OLED pixel to produce a voltage signal representing the voltage across the OLED pixel.

Routley et al. teaches the OLED pixel having a voltage sensing circuit including a transistor connected to one of the terminals of the OLED pixel for sensing the voltage across the OLED pixel to produce a voltage signal representing the voltage across the OLED pixel (See Fig. 7a, items 642,644,706, paragraph 0089).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Routley et al. teaching into Kimura et al. system in order to adjust power supply in response to sensed voltage (See paragraph 0063 in the Routley et al. reference).

As to claims 4,7,20,23 Kimura et al. teaches a plurality of OLED reference pixels and measurement circuits connected to the analysis circuit (See Col. 17, Lines 62-64).

As to claims 5,21 Kimura et al. teaches OLED display includes different types of OLED pixels having different performance attributes and the OLED reference pixels include a pixel of each of the different type (See Col. 18, Lines 1-8).

As to claims 8,24 Kimura et al. teaches to compare OLED pixel performance (measured current) to a model of OLED pixel behavior (predetermined reference current) (See Fig. 3).

As to claims 11-13, 27-29, Kimura et al. discloses a current measuring equipment (16), a compassion circuit (21a), a voltage control circuit (22a), and controller (23). Kimura et al. further teaches at least one of the components including a current measuring equipment (16) may be provided on the TFT array substrate (1), See Col. 21, Lines 40-52).

As to claims 14, 30, Kimura et al. does not specifically teach a reference light emitting pixel located on the substrate such that the reference light emitting pixel has the same attributes as the light emitting pixels in the display. Kimura on other hand teaches as shown in Fig. 1 a TFT substrate (1) including a plurality of pixels (10) arranged within the display region (15). Kimura teaches a predetermined reference current or reference light quantity (Col. 3, Lines 28-33) with respect to measurement of the driving current or the emitted light quantity being performed by the measuring unit on the predetermined pixel-block basis. In addition, Kimura et al. teaches that number of pixels in the pixel block can be determined in a desired manner (Col.17, Lines 57-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the predetermined "pixel-block' in order to determine the number of pixels from which light quantity is measured. One would been motivated in view of the suggestion that determination of the number pixels can be one to satisfy the desired "reference light emitting pixel".

As to claims 15,31 Kimura et al. teaches the control circuit controls voltage to applied to entire display device (See Col. 3, Lines 14-42).

As to claims 16,32, Kimura et al. teaches the control circuit controls voltage to applied to groups of OLED pixels on the OLED display (See from Col. 17, Line 57 to Col. 18, Line 13).

2. Claims 3, 9-10, 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Routley et al. as applied to claims 1,19 above, and further in view of Stapleton et al. (US Patent No. 5,019,807).

As to claim 3, Kimura et al. and Routley et al. do not disclose control circuit further includes a lookup table containing corrected control signals for controlling the pixels of the display.

Stapleton et al. teaches control circuit further includes a lookup table containing corrected control signals for controlling the pixels of the display (See Fig. 3, item 58, Col. 4, Lines 43-44).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Stapleton et al. teaching into Kimura et al., Routley et al. system in order to save performance parameters.

As to claims 9-10,25-26, Stapleton et al. teaches to compare the reference pixel attributes to empirical data (look-up tables) (See Fig. 3, item 58, Col. 4, Lines 43-44).

3. Claims 6,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Routley et al. as applied to claims 5,19 above, and further in view of Sokolick et al. (US Patent No. 6,608439 B1).

Kimura et al. and Routley et al. do not disclose OLED pixels of different colors.

Sokolick et al. teaches OLED pixels of different colors (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Sokolick et al. teaching into Kimura et al., Routley et al. system in order to increase the range of applications.

4. Claims 17,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Routley et al. as applied to claims 1,19 above, and further in view of Soules (US Patent No. 6,423,900 B1).

Kimura et al. and Routley et al. do not disclose the control circuit modifies a response to code values used to represent OLED pixel brightness.

Soules teaches control circuits activates an OLED upon recognizing the pulse code (See Col. 11, Lines 43-55).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Soules teaching into Kimura et al., Routley et al. system in order to increase the range of OLED applications.

5. Claims 18,34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Routley et al. as applied to claims 1,19 above, and further in view of Troutman (US Patent No. 6,157,356).

Kimura et al. and Routley et al. do not disclose the control circuit controls the time that voltage is applied to the OLED pixels in the OLED display.

Troutman teaches the control circuit controls the time that voltage is applied to the OLED pixels in the OLED display (See Col. 3, Lines 3-67).

It would have been obvious to one of ordinary skill in the art at the time of invention incorporate Troutman teaching into Kimura et al., Routley et al. system in order to enable gray scale operation (See Col. 1, Lines 7-9 in the Troutman reference).

Response to Arguments

6. Applicant's arguments with respect to claim 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Telephone Inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
12.23.06

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